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Sarah R Bockting-Conrad* (sarah.bockting@oberlin.edu). *Tridiagonal pairs of q -Racah type and the quantum group $U_q(\mathfrak{sl}_2)$.*

In this talk we explore a connection between tridiagonal pairs of q -Racah type and the quantum group $U_q(\mathfrak{sl}_2)$. Given a tridiagonal pair A, A^* on V that has q -Racah type, we introduce linear transformations $\psi : V \rightarrow V$, $K : V \rightarrow V$, and $B : V \rightarrow V$ which act on the split decompositions of V in an attractive way. Using ψ, K, B we obtain two $U_q(\mathfrak{sl}_2)$ -module structures on V . For each of the $U_q(\mathfrak{sl}_2)$ -module structures, we compute the action of the Casimir element on V . We show that these two actions agree. Using this fact, we express ψ as a rational function of $K^{\pm 1}, B^{\pm 1}$ in several ways. Eliminating ψ from these equations we find that K and B are related by a quadratic equation. (Received September 16, 2014)